AMENDMENTS TO THE DRAWINGS

Applicant is submitting herewith two (2) sheets of drawings, which are new Figures 3

and 4.

Attachment: Two (2) New Sheets

REMARKS

Claims 1-9 and 11-14 are all the claims pending in the application. By this Amendment, Applicant editorially amends claims 1-9 and 11. The amendments to claims 1-9 and 11 were made for reasons of precision of language and consistency, and do not narrow the literal scope of the claims and thus do not implicate an estoppel in the application of the doctrine of equivalents. In addition, by this Amendment, Applicant adds claims 12-18, which are clearly supported throughout the specification. Applicant also cancels claim 10 without prejudice or disclaimer.

By this Amendment, Applicant also amends the specification and adds two new figures. No new matter is being added.

I. Formal Matters

Applicant thanks the Examiner for acknowledging Applicant's claim to foreign priority and for indicating receipt of the certified copy of the Priority Document.

Applicant also thanks the Examiner for returning the initialed Form PTO/SB/08 filed with the Information Disclosure Statement filed on March 21, 2007.

II.   Summary of the Office Action

The Examiner objected to the Drawings and claims 1-11. The Examiner also rejected claims 1-11 under 35 U.S.C. § 112, second paragraph and under 35 U.S.C. § 101. In addition, the Examiner rejected claims 1, 2, 6-9, and 11 under 35 U.S.C. § 102 and claims 3-5 under 35 U.S.C. § 103(a).

III. Objections to the Drawings

The drawings are objected to under 37 C.F.R. § 1.83(a). The Examiner states that an exemplary embodiment of the processor and coder/decoder set forth in claims 7-9 and 11 must

be shown in the figures or canceled from the claims. With the addition of Figures 3 and 4,

Applicants have shown an exemplary embodiment of the features depicted in claims 7-9 and 11.

The specification is also amended to describe the two newly added figures. No new matter is

being added. Accordingly, Applicant respectfully requests the Examiner to withdraw the 37

C.F.R. § 1.83(a) objection.

IV. Objections to the Claims

The Examiner objected to claim 1-11 because of minor informalities. Applicant has

revised the claims, and respectfully submits that the claims as now presented no longer include

the potential informalities mentioned by the Examiner. Applicant therefore respectfully requests

the Examiner to withdraw the objections to the claims.

V. Rejections Under 35 U.S.C. § 112

Claims 1-11 are rejected under 35 U.S.C. § 112, second paragraph. Applicant thanks the

Examiner for pointing out, with particularity, the aspects of the claims thought to be indefinite.

Applicant respectfully requests the Examiner to withdraw this rejection in view of the self-

explanatory claim amendments being made herein.

VI. Claim Rejections Under 35 U.S.C. § 101

Claims 1-11 are rejected under 35 U.S.C. § 101 as being allegedly directed to non-

statutory subject matter. To expedite prosecution, Applicant has amended the claims to

overcome the Examiner's rejection. Accordingly, Applicant respectfully requests the Examiner

to withdrawn the 35 U.S.C. § 101 rejection.

VII. Claim Rejections Under 35 U.S.C. § 102

Claims 1-2, 6-9, and 11 are rejected under 35 U.S.C. § 102(b) as being anticipated by

Kwan et al., "Implementation of DSP-RAM: An Architecture for Parallel Digital Signal

Processing in Memory," (2001) (hereinafter "Kwan"). Applicant respectfully traverses these

grounds of rejection at least in view of the following exemplary comments.

This response at least initially focuses on exemplary features of claim 1. Claim 1 recites:

> A method of coding a signal using a codebook search of a
> codebook, comprising:
>
> dividing said codebook into a plurality of codebook groups, where
> the codebook comprises a plurality of code vectors for vector
> quantization of a signal vector representing a set of signal values of
> said signal;
>
> simultaneously determining plurality of optimal group code
> vectors, each of which corresponds to one of said plurality of
> codebook groups; and
>
> determining an optimal code vector of said codebook from said
> plurality of optimal group code vectors.

The Examiner' alleges that Claim 1 is anticipated by Kwan because allegedly Kwan discloses the

codebook search set forth in claim 1. Applicant respectfully disagrees.

Kwan teaches a method for signal processing called DSP-RAM, which is an

improvement of computational RAM (C-RAM) (Kwan; Abstract, page 341). The DSP-RAM is

composed of an linear array of processing elements (PEs), which are able to exchange data with

each other via a communication network or via data read and write operations (Kwan; Section 1,

page 342; Figure 1). Under Kwan, the DSP-RAM efficiency is verified using finite impulse

response (FIR) digital filtering, discrete cosine transform (DCT), and vector quantization (VQ)

(Kwan; Section 3, page 342). The Examiner claims that the method used for VQ in the Kwan

reference anticipates Claim 1.

As stated in the Kwan reference, VQ is a method for "compressing data vectors using **a codebook of stored equal-length codeword vectors**" (Kwan; Section 3.3, page 344). VQ involves determining the nearest match of a given data vector containing codeword (Kwan; Section 3.3, page 344). Under VQ, **each codeword vector is distributed over the PEs** of the DSP-RAM (Kwan; Section 3.3, page 345). After each codeword vector of the codebook is distributed across the available PEs, each PE calculates the L2 norm, from which the "lowest error match within each PE" is determined (Kwan; Section 3.3, page 345). From this calculation, the lowest error match within each PE is determined (Kwan; Section 3.3, page 345). Kwan does not teach of **"dividing said codebook into a plurality of codebook groups"** as recited in Claim 1. Instead, Kwan teaches of **dividing a codebook into codeword vectors** which are distributed across all available PEs in DSP-RAM. Therefore, Kwan does not anticipate Claim 1.

For at least the above reasons, Claim 1 and its dependant claims should be deemed allowable. Applicant respectfully requests that the Examiner withdraw the 35 U.S.C. § 102(b) rejection.

VIII. Claim Rejections Under 35 U.S.C. § 103

Claims 3-5 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Kwan in view of U.S. Patent No. 4,868,867 to Davidson et al. (hereinafter "Davidson"). Applicant respectfully traverses these grounds of rejection at least in view of the following exemplary comments.

The Examiner states that Kwan in view of Davidson renders claims 3-5 obvious. Applicant respectfully disagrees. As stated above, Kwan does not teach "dividing said codebook

into a plurality of codebook groups" as recited in Claim 1. Therefore, Claim 1 and its dependent

claims are not taught by Kwan.

Davidson does not cure the deficiencies of Kwan. Davidson teaches of compressing

vectors of digital voice or audio using an optimum codebook (Davidson; Abstract; column 1,

lines 13-15). In the method taught in Davidson, a codebook search under Pulse Vector

Excitation Coding (PVXC) is taught (Davidson; column 12, lines 15-17). Under this method, the

numerator and denominator of equation 6, which is used for selection of an optimal codevector,

is calculated (Davidson; column 11, lines 53-65; column 12, lines 18-25). The denominator is

calculated once per frame and stored in memory c, whereas the numerator is calculated for **every**

excitation codevector in the codebook (Davidson; column 12, lines 21-27). Then, the

codebook search is conducted by determining the excitation code vector c_j that maximizes the

ratio between the numerator and denominator of equation 6 (Davidson; column 12, lines 26-27).

During the course of the search, registers E_n and E_d hold the numerator and denominator ratio

terms of the best codevector found in the search thus far (Davidson; column 12, lines 28-31).

This allows for a comparison to be made between the cross multiplication of the numerator and

denominator of each excitation codevector to determine the optimal codevector (Davidson;

column 12, lines 40-51). Since the denominator and numerators are calculated for each

excitation codevector in the codebook, the codebook is not divided "into a plurality of codebook

groups" as recited in Claim 1. Further, since a comparison is made for each cross multiple of the

calculated numerator and denominator for each codevector of the codebook, the codebook is not

divided "into a plurality of codebook groups" as recited Claim 1. Therefore, Davidson does not

teach **"dividing said codebook into a plurality of codebook groups"** as recited in Claim 1.

For at least the above exemplary reasons, claim 1 and its dependant claims 3-5 should be

deemed allowable. Applicant respectfully requests that the Examiner withdraw the 35 U.S.C. §

103(a) rejection.

IX.   New Claims

In order to provide more varied protection, Applicant adds claims 12-18, which are

patentable at least by virtue of their dependency and for additional features set forth therein.

X. Conclusion

In view of the above, reconsideration and allowance of this application are now believed

to be in order, and such actions are hereby solicited. If any points remain in issue which the

Examiner feels may be best resolved through a personal or telephone interview, the Examiner is

kindly invited to contact the undersigned attorney at the telephone number listed below.

The USPTO is directed and authorized to charge all required fees, except for the Issue

Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any

overpayments to said Deposit Account.

Respectfully submitted,

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